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ORNITHOLOGICAL NOTES FROM NORFOLK FOR
1902, WITH REFERENCES TO SOME OCCUR-
RENCES IN OTHER COUNTIES.

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(PLATE III.)

To every ornithologist the autumn migration which takes place on the east coast of England is an unceasing source of wonder and delight, and, although it has been often watched and described, there is still a good deal more to be learnt about it, especially in regard to what is commonly understood by the term "land-birds."

During 1902 there was a good deal of restless movement, and this became especially manifest in October, when several rarities were evidently *en route* for somewhere, although that "somewhere" was not the British coast, where if they come it is against their will. There was much west wind in 1902 after the 12th October, and with a west wind our immigrants are always more in evidence, because it has been against them whilst crossing the North Sea, and kept them back; consequently they do not reach their destination until after daybreak, if the wind has been strong.

In Norfolk and Suffolk rarely an autumn passes without some species being markedly in the ascendant, and for 1902 the Rooks seem to take the first place, though it is not often that we have

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had so many Ring-Ouzels and Shore-Larks. The passage of Rooks was very strong, and particularly in the neighbourhood of Wells did these birds predominate during the latter part of October. For convenience' sake the returns sent in are tabulated; they show the direction of the flight to have been west, and as usual the Rooks were in most cases going against the wind (see opposite page).

Mr. E. Kay Robinson, who is well situated to observe the incoming rush of migrants, in an article in the 'Daily Graphic' of Nov. 1st, referring to the vicinity of Warham and Wells, writes, under the heading of "A Deluge of Rooks":—"The commoner winter migrants have come to North Norfolk in enormous numbers this week. Every day and all day without cessation flocks of Rooks and Jackdaws drifted across the sky, following the coast-line westwards; and if a similar invasion of Rooks has prevailed all down the east coast, England will see rather too much of the 'farmer's friend' this year." It would be interesting if it could be ascertained how far south the movement extended; it certainly reached Suffolk, for they were noticed at Aldeburgh by Mr. Charles Clarke, but beyond there I have no correspondents.

From there to the mouth of the Humber, if not further, a broad front must have extended, but in North Lincolnshire Mr. Caton Haigh considers that a considerable number of the sable travellers were not Rooks, but Carrion-Crows. We always have an immigration of *Corvidæ* in autumn, when Rooks, Jackdaws, Carrion-Crows, Grey Crows, and perhaps an occasional Raven, mingled together, cross the sea; and it is wonderful how these bands are true to arrive in the third or fourth week in October, but this year the movement was unusually marked.

With regard to the Shore-Larks, they seem to have arrived during the first week in October, and either because they were unmolested, or because they had reached their intended destination, they apparently stayed the winter. Not so the Ring-Ouzels; they are birds of double passage, which neither breed nor winter in East Anglia, save in very exceptional cases.

The Norfolk rarities for the year 1902 are a Scops Owl in April; a Roseate Tern in May and June; a Caspian Tern in July; a Roller, an Aquatic Warbler, and a Barred Warbler in



A MIGRATION OF ROOKS.

1902.	Wind.	YARMOUTH (Dye).	HICKLING (Bird).	CROMER (Cole).	CLEY (Gunn).	WELLS (Robinson).	NORTH LINCOLNSHIRE (Caton Haigh).
Oct. 6th ...	E.S.E. ....	.....	.....	.....	.....	A few. —	.....
" 7th ...	S.E., light.....	—	—	—	—	.....	.....
" 8th ...	S.E., light.....	.....	Constant influx going W. or S.W.	.....	.....	.....	Flocks going S.W.
" 14th ...	W.	—	—	—	—	—	—
" 15th ...	W., strong .....	.....	.....	.....	.....	.....	.....
" 16th ...	N.N.W., strong .....	.....	.....	.....	Straggling flocks going W.	.....	.....
" 18th ...	E. ....	.....	.....	.....	Straggling flocks going W.	.....	.....
" 20th ...	W. ....	.....	.....	.....	.....	.....	.....
" 22nd ...	W. to N. ....	.....	.....	[A good many com- ing over about this date.]	.....	.....	A few going W.
" 23rd ...	N.N.W., light	A number going W. or S.W.	Continually pass- ing W. or S.W.	.....	.....	All day long go- ing W.	Many going W.
" 24th ...	N.W., light ...	.....	Continually pass- ing W. or S.W. in fewer numbers.	.....	.....	All day long go- ing W.	Continuous flocks going W.
" 29th ...	S. ....	.....	.....	.....	.....	Large flocks go- ing W.	.....
" Nov. 3rd...	S.W., veering to S.E. ....	.....	.....	.....	.....	(Large flocks go- ing W.	.....
" 13th ...	S.W., light .....	.....	.....	.....	.....	.....	Flocks going S.

September; Lesser Grey Shrike and Porphyrio in October; Glossy Ibis in November; and Little Bustard in December. An Eagle Owl is also supposed, on the word of an intelligent game-keeper, to have been seen at Trimingham (*cf.* Pigott, Bull. B. O. Club, xiii. p. 20), where Owls of all kinds have for many years been protected.

The Little Bustard, as usual, was in December. This is at least the fourth which has occurred in Norfolk in December, and throughout the whole of East England it may be said to be nearly always in the winter that this bird appears, and generally in one of the three winter months—November, December, or January. This is rather remarkable, because it is a southern species whose breeding area lies on both sides of the Mediterranean. It must be that our winter Little Bustards are blown from somewhere in Eastern Europe, perhaps the plains of Southern Russia, or even farther east than that. It is not stated by authors that they breed north of lat. 50, but they may be extending their range beyond that to some fresh districts not yet discovered.

I must now refer to a noticeable coincidence which took place on Saturday, Oct. 11th, the day on which the Green-backed Porphyrio was first seen; two other very rare birds had also landed in England, perhaps in its company, *viz.* a Lesser Grey Shrike in Norfolk, and a Little Bunting in Durham. On the same day a Glossy Ibis was shot in Herefordshire, and another the following day in Sussex. Besides this it was observed that on the two preceding days (Oct. 9th and 10th) a great deal of migration was going on in Norfolk, and especially in Lincolnshire (Mr. Caton Haigh), such well-known over-sea travellers as Harriers (two), Rough-legged Buzzard (one), Ring-Ouzels, Redwings, Robins, and Lapwings coming particularly under notice. To those who live on the coast, October is a month for being always on the alert, and I was so impressed with the idea that something was coming that morning, that I hurried down to the cliffs after breakfast; though probably it was already too late, as my journal says: "Oct. 10th, no birds coming over, as I had expected." But there were some good birds, only they did not come my way; for a Porphyrio, a Lesser Grey Shrike, and a Little Bunting were perhaps actually crossing the sea! To my mind, the coincidence of these three birds being met with on the

same day, and all near the coast, is very suggestive, and points to the conclusion that the same meteorological conditions brought them all.

The first thing to always consider on the coast is the wind. The wind in Norfolk, and probably on all the eastern seaboard of England, on Oct. 10th was from the west, *in which direction it had not been for fifteen days prior to the 9th.* During the whole of that fortnight it had blown steadily from E. or S.E. My theory is that it was this sudden change of direction which stopped the Lesser Grey Shrike, the Porphyrio, and the Little Bunting, and caused them to halt on their journey, they having already been carried considerably to the west of their proper line of flight by the previously prevailing easterly winds. This, I submit, is a more simple and a more natural way to account for the presence of the Porphyrio than to think it had escaped; but cf. an article on these Porphyrios by Mr. Bird in 'The Naturalist's Quarterly,' ii. p. 52.

The imported Bustards.—There is no good news to give of the Great Bustards turned down in the Brandon district in August, 1900, which, it will be remembered, were reduced by migration and disaster to four when the last "Norfolk Notes" were printed. In March, 1902, Mr. J. S. Elliott wrote that one of them, evidently a cock, had taken up its quarters at Croxton, in Cambridgeshire. Very shortly afterwards I learnt from Prof. Newton that a cock Bustard—probably the same bird—had been caught alive at Oakington, also in Cambridgeshire. Whether the captor had the patriotism to release it I cannot say, but Mr. William Hill, in whose charge all these Bustards originally were, wrote me some time later that a cock had been seen for some time at Swaffham Prior. This cock was considered by Mr. J. L. Bonhote to have been the same Bustard, which, after being loyally respected for nearly six months, was unfortunately shot by a farmer who had not seen the placards which were posted up about it, by order of the Chief Constable, at Bottisham, in Cambridgeshire, on Sept. 25th. On Nov. 5th Mr. William Howlett saw the two last remaining Bustards, a cock and a hen, at Mildenhall, which is nine miles south of Brandon, and they were again seen by others at Barton Mills; these are all that are left of the fifteen originally turned down! In June there was

prospect of breeding, for the hen laid two eggs near Elveden. Mr. Hill allowed her to sit for six weeks, and then took the eggs, which proved to be unincubated. Incubation ought to be about twenty-six days, according to Mr. Evans's table. I learn from my correspondent, Mr. Caton Haigh, that on Dec. 15th a female Great Bustard was shot in Lincolnshire, and another on the 29th, but fortunately neither formed part of the tame birds from Suffolk, where, at the time of closing these notes, Mr. Hill could still report the pair above mentioned as being quite safe. No doubt the Lincolnshire Bustards were migrants which had crossed the sea, only to receive the customary welcome of rare birds on British shores. Two others also appeared in Ireland ('Field').

JANUARY, 1902.

1st.—On the whole this month was fine. Birds pursued their usual peaceful avocations, and a few, I suppose, even had the temerity to think about nesting, for a Great Titmouse laid four eggs in a box put up for nesting purposes at Raveningham.

10th.—Many Lesser Redpolls at Crostwight (M. C. Bird).

14th.—Wild Ducks "treading" at Catfield (Bird).

22nd.—Several Wild Ducks rose in pairs; Water-Rails "screaming" (Bird).

FEBRUARY.

4th.—E.N.E., force 5. After a very cold wind Mr. Bird saw a Magpie at Crostwick.

6th.—The keeper saw two Magpies at Keswick, the first I ever remember having here.

7th.—A pair of Shovelers taken on Breydon Broad (E. Saunders). Stevenson remarks that winter-shot Shovelers are nearly always drakes.

10th.—A great quantity of Pochard Ducks and Coots on Hickling Broad (Bird).

19th.—Six Coots on Breydon (B. Dye).

20th.—A Coot picked up on Cromer lighthouse hills (Barclay), where a few months ago one † was caught at the lighthouse.*

27th.—E.S.E. Dipper at Raynham (C. E. Butler), presumably *Cinclus melanogaster*.

* Only such birds as are marked with a † have been examined by the recorder.

MARCH.

- 6th.—Grey Shrike at Brunstead (Bird).
10th.—Lapwing's call first heard (Bird).
24th.—S.S.W. Rooks and Jackdaws flying N.W. (Bird).
29th.—E.N.E., force 2,* fog. Rooks and Grey Crows flying N.W. (Bird). Four Garganey Teal—one drake and three ducks.

APRIL.

6th.—S.W. A Scops Eared Owl clearly identified at Sidestrand by Mr. S. J. Hoare; it allowed close inspection, even at a distance of only a few feet, being probably exhausted by a northerly gale with heavy rain, which had prevailed the night before, and which may have blown it from somewhere, though it is not a northern species. When first seen it was a mile and a half from the sea, on a young spruce-fir, tightly drawn up against the stem of the tree; in the evening it was again seen on the same fir, and even when the tree was shaken by the keeper it did not move. He tried to catch it, but it fluttered away, and was not seen again.

19th.—S.E. It is not often that the Common Linnet is detected on its spring migration in Norfolk, though the "passage" is looked for by birdcatchers on the south coast of England; but on this date many were seen by Mr. Bird on Horsey Warren, going south in small companies off and on all day. He remarked but little wind, though at Yarmouth it was registered as "force 2, fog." Again on May 3rd he saw more detachments going in the same direction all day, and it is quite possible that Linnets pass this portion of the coast annually.

20th.—S.S.E., force 4. Two Spoonbills seen on Breydon by Mr. Patterson.

21st.—Young Bearded Tits well feathered (Bird).

26th.—Young Coots already able to fly on Hickling Broad (Bird). Stock-Doves have now resplendent necks.

MAY.

4th.—N., strong. Some beautiful black-breasted Grey Plovers on Breydon muds (G. Jary).

5th.—N.N.W., force 4. Four Wood Sandpipers, sixteen

* I use force 2, force 3, &c., in the same sense that the numbers are published at the Meteorological Office.

Dunlin, ten Whimbrel, three Lesser Tern, and a Garganey Teal reported to Mr. Bird.

6th.—A Black-headed Gull seen to swoop on a very young Moorhen and carry it off, as it was following its parent yesterday across the Bure (W. Nicholson). Weather very cold, with rain.

7th.—*Nidification of the Black-headed Gull.*—I generally try to get in a visit to Scoulton Gullery about this time of the year, though it is not the wonderful sight it used to be. The mere has suffered from scarcity of rain-water and snow to fill it, and so many young have died from the drought—especially in the summer of 1901—that the owner, Mr. Weyland, took the wise precaution of limiting the take of eggs in 1902 to one thousand, and the keeper said he did not think that number had been gathered. This is very different from the palmy days of the settlement, when 15,000 or 20,000 eggs could be taken, and no harm done. As long as I have known it, the breeding-ground has been at the north-west end of the island, or “hearth,” as it is sometimes called, and this portion has no doubt been selected by the Gulls as being the most boggy, and consequently the safest part. It is now little over half an acre in extent, but on this limited superficies the nests are packed thickly. They are rather coarsely put together, made of “gladden” rushes and “bolder” reed, and some smaller materials, and while some of them are quite a bright green, here and there is one which is brown, being made of last year’s reeds. Where the nests are, nothing grows; there are no bushes of sweet-gale, and the herbage is quite sear.

The Black-headed Gulls commence laying in April, and a very interesting sight it is to see the nests with their three handsome eggs, though at neither Scoulton nor Hoveton are you allowed to gather them. Incubation lasts twenty-three days (Evans’s table), and as soon as an egg begins to chip a noisy youngster can be heard proclaiming itself inside, which before very long takes to the water. The nestling can see directly it is hatched; in fact, its eyes are wide open before it has struggled clear of its shell, and equally is the power of swimming born with it. I found it hopeless to try any sort of counting, but I estimated that there must be still at least one thousand Gulls at Scoulton. When a loud shout makes them all rise in the air, the noise of their cries is something quite tumultuous—not one

single Gull is silent; but it is all vocal noise, for the multitude of wings make no sound. If they shut their beaks they would be as noiseless as so many Owls. The first time I visited Scoulton Gullery was in 1860, and that year there were gathered 16,000 eggs, supposed to be the produce of about 7000 Gulls, and I doubt if that number has ever been surpassed since.

The following particulars of the number of eggs taken in the last five years at this important breeding-place have been kindly supplied by Mr. Robert Baldry, agent to the estate:—1898, 5736 eggs; 1899, 6618 eggs; 1900, 7474 eggs; 1901, 7654 eggs; 1902, 900 eggs.

8th.—Mr. Watson, of Letton, saw a Mistle-Thrush actually strike and kill a Jackdaw as it was circling round the tree which contained the Thrush's nest. They are strong birds, and I have often been threatened by them in the most determined manner when near a nest, both male and female dashing round with loud cries. A few days ago my nephew put a Barn-Owl off her eggs, when immediately a pugnacious Mistle-Thrush knocked her quite off the bough on which she had perched, and which was probably near its own nest.

9th.—Young Rooks very backward. Six Norfolk Plovers' nests reported in the 'Field' by N. G.

10th.—*Nidification of the Ringed Plover*.—Thanks to Mr. Cresswell, who has put on a paid watcher, the breeding-place of the Ringed Plover, Common and Lesser Tern, and Lapwing on our north coast is in a more flourishing condition than formerly. No egg-stealers can go there now, but the Grey Crows are credited by Mr. Cresswell with some depredations before they leave to go north, always clearing off the earliest Lapwing's eggs. In the course of a ramble with that gentleman over the principal nesting-ground, we were shown by the watcher nine Ringed Plovers' nests containing eggs, two others with the eggs just hatched off, and several empty nests (maybe "play-holes"), and one with an egg and three young birds. These were only just hatched, the female having doubtless left them at our approach, for the down on them was still wet, and one chick not quite out of the dorsal half of its egg-shell. I noticed how neatly the shell had been divided into two, in effecting which the beak of the parent Plover had probably helped. It seems fairly evident

that directly the nestling is free the old Plover must fly off with both pieces of egg-shell, and drop them at a safe distance where they cannot betray her. The domestic economy of this pretty little shore-bird deserves some study, and I should have liked to renew my visit on a warmer day.

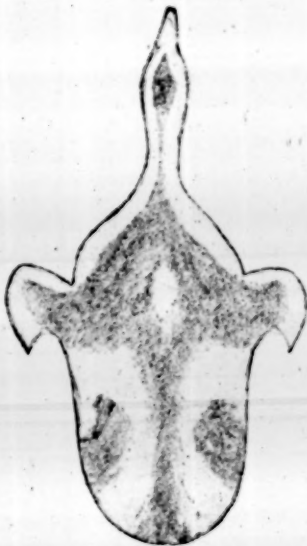
It is clear that the young Ringed Plovers are not hatched quite simultaneously; it is also evident that when hatched their legs develop so rapidly that three or four hours suffice to give them strength enough to run. Most likely they return to the nest at night, and are sheltered under the warmth of the parents' breast; otherwise one hardly sees the necessity for such speedy removal of the egg-shells. Most of the nest-holes here are lined with broken cockle-shells, of which there are plenty in Norfolk, and while three exquisitely spotted eggs point inward, the fourth is generally pointed sideway. I measured many of the nest depressions with a rule; some are larger than others, but the average circumference is fifteen inches, and the average diameter four inches. The above were typical nests, and neither on this nor on any other occasion have I found one constructed of bents of grass, as described and figured by Mr. Kelso.

A photograph by Mr. H. E. Harris, though not taken in Norfolk, so admirably represents a Ringed Plover on her eggs, that I am tempted, with his permission, to reproduce it (Plate III.).

11th.—*Sheld-Duck*.—The increase of that handsome fowl the Sheld-Duck in the Lynn and Hunstanton district is exceedingly satisfactory, and is principally due to their being protected by the King's orders on Dersingham Heath, and on other parts of his shooting, where they breed in considerable numbers. At a distance their white forms on the heather and bracken-clad slopes look almost like sheep, and strangers passing in the train must have often wondered what sort of birds they could be. There is no change whatever in their plumage at the breeding season—no eclipse of beauty as in most drakes—but the colours are duller. They are brightest in January and February, and until the end of March, by which time the beak of the drake has reached its height of brilliancy, and the tubercle is more than twice its former size, and a great deal of courtship goes on.

Every morning and evening, Mr. Cresswell tells me, numbers come down to the Wash, and even in the middle of the day, when

there are not usually so many, I counted sixty Sheld-Ducks swimming at the mouth of one large creek. On being disturbed the flocks break up into pairs at this time of the year, the female as often leading the way as the male; and the difference in size when on the wing, as they fly round on their way back to the royal demesnes, is much more marked than might have been expected. Their eggs are generally deposited in rabbit-holes, and if it be on a sandhill, instinct teaches the old duck to fly straight into the hole, in order that no footprints may betray her. I have never dug a nest out, but have been told by those who have, that it is no light job, the eggs being often ten or twelve feet from the entrance of the burrow. When the young are hatched



the old Sheld-Duck brings them down to the sea, from the higher ground at Dersingham, a distance of a mile or two. This would no doubt generally be in July, and I am told by Mr. Cresswell that the poor broods are greatly nonplussed by the wire-netting which has been recently put up in some quantity by the King's orders, and in consequence have been actually seen being led down the village "street" or road to avoid it! At this age they are white, with brown heads and brown spots on the back, and these colours make an odd pattern if a young nestling is laid on its breast, as shown in the above figure, which is half size.

12th.—On different occasions during May a Roseate Tern

was seen at Blakeney Point by Mr. C. A. Hamond, flying with other Terns, but apparently mateless, though Pinchin afterwards said it paired with a Common Tern, and he considers that he found their nest. It was subsequently seen by several other people, and remained about until July 31st, if not longer, and no doubt at all was entertained as to its identity. It is also reported to have been seen at Wells, where a pair are known to have taken up their abode in 1897 (Norf. and Norw. Trans. vi. p. 512); it is possible that *Sterna dougalli* is an annual visitor.

20th.—Scores of Swallows and Martins picked up dead in Oakley Park ('Daily Press'); five † picked up at Keswick; others at Wells.

23rd.—W., strong. Spoonbill on Breydon (Patterson).

JUNE.

1st.—Spoonbill on Breydon (Dye).

5th.—Nuthatch feeding its young on moths.

19th.—Grey Crow at Hickling (Bird).

20th.—A pair of Shovelers on Breydon Broad (Jary).

22nd.—Grey Crow at Northrepps (Shepherd).

JULY.

Mr. Cremer informs me that an adult Gannet was picked up at Runton about the beginning of July—an unusual season for it—and lived a fortnight on his pond. Runton is on the coast.

5th.—Three Snipe's eggs at Keswick, the female on them, the male a few yards off.

24th.—W., strong. A Caspian Tern seen on Breydon Broad by G. Jary, as already announced (Zool. 1902, p. 391). The wind the day before was N.E., day fine, and Mr. Jary remarked a number of Waders about. It was almost exactly at this time last year that a Caspian Tern appeared, possibly the same individual, and that also came with a W. wind following upon N.E.

28th.—Woodcock † picked up at Northrepps.

AUGUST.

18th.—Various species beginning to collect for migration. Large flocks of young Mistle-Thrushes in the turnip-fields, and the usual young Redstarts and Pied Wagtails on lawns; Swallows assembling on houses, and flocks of "brown" Starlings upon

grass-lands, where, it is to be hoped, they found the wireworms which attacked the young wheat in May.

31st.—N. *Flight of Limicolæ*.—Mr. Charles Clarke, of Aldeburgh, on the Suffolk coast, sends the following note :—Quite at the end of August he heard hundreds of shore-birds passing at night over Aldeburgh, chiefly, judging by their cries, Golden and Grey Plover, Lapwings, Godwits, and Dunlin; they appeared to be going in a westerly direction, and were probably attracted by the town lights.

In Norfolk, on the 31st, hundreds of Curlews, with Bartailed Godwits, Turnstones, Whimbrel, Knot, Dunlin, Ringed Plover, and Grey Plover, were seen by Mr. Jary, our watcher, on Breydon Broad, possibly a part of the same flight heard by Mr. Clarke. The following day the pressure of *Limicolæ* was felt at Blakeney; two Dusky Redshanks,† Curlew Sandpipers, Little Stints, Knots, Golden Plover, &c. (Pashley), but shore-shooting opened, and the birds soon vanished before the fusillade.

SEPTEMBER.

8th.—The wind at Yarmouth, which is the only Norfolk station whose record is published, was registered as N.E., force 3.

9th.—N.E., force 3. Roller at Rushford, near Thetford (E. Bidwell). An Aquatic Warbler,† shot by Mr. T. E. Gunn; this appears to be an adult. It is rather singular that six years ago he should have met with one at the same place, and almost on the same day.

11th.—S.S.E. A Hobby at Twyford, chasing cockchafers or other beetles among the tops of some oak-trees, where it was watched with much interest by a gentleman who was too good a naturalist to shoot it. There is reason to think that a pair may have bred in Foxley Wood this summer, but they are very rare. In 1866 the late Henry Stevenson could write of the Hobby as "a very regular summer visitant."

13th.—N., strong. The wind changed to N. yesterday, and became very boisterous in the evening, a fact which may account for the presence of several interesting birds at different points on the coast. The following, I learn from Mr. Pashley, were identified to his satisfaction :—One Barred Warbler, one Little Gull, three if not four Buffon's Skuas, and several Blue-throated Warblers,

including some fine old birds. The change was probably also accountable for twenty-five Pink-footed Geese on Holkham sandhills, the earliest arrival known to Mr. A. J. Napier during many years' observation.

20th.—W.N.W., light. [Barred Warbler in North Lincolnshire (Caton Haigh). This species appears to be becoming an annual visitant to the east coast.]

24th.—S.W., light. A Grasshopper-Warbler sent to Mr. Pashley, with a message that there were several others about near the sea, among the shore "bushes," probably a scattered flock.

26th.—N., light. Hoopoe seen.

29th.—E., light. Ring-Ouzel † at Northrepps, close to the house.

30th.—Received a Gannet † which had been found on the beach; did not hear of any Guillemots or Razorbills being washed up.

OCTOBER.

1st.—E., very stormy in the afternoon.

2nd.—E., strong wind; likely to bring migrants.

3rd.—S.S.E., strong. My nephew met with three Woodcocks, exceedingly scarce birds this year; and the young Ring-Ouzel, before mentioned, allowed us the privilege of watching it on an elder-bush covered with black bunches of berries, which this bird, in company with several Blackbirds, was rapidly thinning, until the tree eventually presented quite a stripped appearance. Afterwards it was detected eating blackberries, and also searching the lawn, for worms no doubt enter into its diet. On this day and the following there seems to have been a great deal of migration going on. A Golden Oriole was seen in a garden at Hadleigh, in Suffolk ('Field'),* and Mr. Bird reported Grey Crows on the move near the coast, and twelve Bewick's Swans, of which two were shot. I also noticed many more Chaffinches and Robins than the ordinary stock would account for, and some Kestrels had come in from the sea. Willow-Warblers, Chiffchaffs, and Garden Warblers were passing at Cley, and Wheatears and Redwings were on the move (Pashley), as usual, but the stream of Rooks had not begun.

4th.—N.E. Some Shore-Larks seen on the cliff at Over-

* 'Field,' Oct. 18th, 1902.

strand by Lord Hillingdon. About this time several were received alive by Mr. Lowne of Yarmouth, others were reported to Col. Feilden at Wells, and Mr. Pashley afterwards wrote me that for three or four months, dating from the end of September, they were always to be found in the places where one is accustomed to look for them in his neighbourhood.

5th.—S.E. Mr. Gunn received a Ring-Ouzel from Ely, and about this time several appeared at Cley (Pashley), Warham (E. K. Robinson), Palling (Bird), Somerton (Bird), and other places. It is several autumns since we have had so many of these "Michaelmas Blackbirds," well-known visitors though they are; there were also a good many in October, 1899.

6th.—E.S.E. A Grey Shrike seen by Mr. Ernest Gunn flying along the shore, and another the next day.

8th.—S.E., light. Many Ring-Ouzels at Cley (Pashley).

9th.—S.S.E. A Montagu's Harrier† in female plumage, mobbed by nine or ten indignant little birds; it was hovering over Northrepps bracken hills, no doubt for Field-Mice.

11th.—S., light. An immature Lesser Grey Shrike (*Lanius minor*, Gmel.), the third for Norfolk, shot by Mr. G. E. Lodge when Partridge-driving at Docking, which is about five miles from the sea. On the same day a Green-backed Porphyrio put in an appearance on Hickling Broad, also near the sea, where it subsequently fell a victim to the gun, as announced in the 'Field' by Mr. A. H. Smith, who remarked on the presence of other migratory birds.

14th.—W. A Rough-legged Buzzard at Shottesham, circling for some time over a party of shooters, but it wisely kept out of range (E. Knight); however, the keeper picked up a Rabbit it had killed. About the same time Mr. Cole, of Norwich, received one to stuff, with a young chicken, and a message to say that it had killed nearly twenty of the same size before its depredations could be put a stop to. In the course of the autumn I heard of four or five more; one of them, circling over Cromer railway station as late as the 14th of December (H. Cole), seemed, from its proximity to the sea, to have just come in. No doubt the government rewards paid in Norway have already lessened the supply of raptorial birds which used to come to England, joined to the destructive efforts of our gamekeepers.

18th.—E. The wind changed from W. to E., and Mr. E. Kay Robinson observed many birds coming in near Wells, including numbers of Hooded Crows, Rooks, and Jackdaws, as well as Fieldfares, some Snipe, and a few belated House-Martins.

19th.—Fine. Mr. Patterson saw birds coming over from earliest morning, flying high, amongst them Lapwings.

20th.—W. Mr. Patterson saw more migrants coming over.

23rd.—N.N.W., strong. Hundreds of Gulls, chiefly the larger sorts, came on to Somerton and Horsey Broads (Bird); this and the 24th were the days on which the great arrival of Rooks took place. Mr. Bird writes that he has seldom seen such a constant influx as on the 23rd. The wind was light at Norwich, but strong at Yarmouth (force 4), and Spurn Head (force 4).

31st.—A Water-Rail caught in the town at Yarmouth (Patterson).

NOVEMBER.

1st.—I am indebted to Mr. Patterson for the following:—A lightship man who had come ashore from the "Outer Dowsing," which rides well out to sea, informed him that in November, for two or three days, Rooks, Hooded Crows, and Jackdaws swarmed round the lightship, and he believed at one time there were nearly one thousand of them on board, sitting about the bulwarks, cabin-tops, ropes, fittings, &c. The weather was foggy.

3rd.—S.S.E. A good many Water-Rails on the coast, and a fresh arrival of Shore-Larks (Pashley).

19th.—E. Repeated flocks of Jackdaws coming in from the sea at Yarmouth (Patterson), as many as fifty in a bunch.

21st.—No fewer than twenty-three Mistle-Thrushes in my garden on one yew-bush, eating the berries, the remains of which they afterwards voided in a red pulp.

22nd.—A Flamingo shot in the Wash, supposed to have been



one released by the Duke of Bedford. If the plan was adopted, of putting thin rings* of white metal or aluminium on the legs

* The above figure represents an interlocking ring for large birds.

of birds before they are turned down unpinioned, their identity would be always easy to establish.

25th.—Norfolk has shared in the visitation of the Glossy Ibis, a fine male having frequented the River Bure near Ludham for some weeks, only to fall on the 25th to the gun of a passing wherryman. Nearly all the wherries carry guns. The migration seems to have taken place about the second week of October, and the birds to have spread themselves over Sussex (four), Scilly Islands (one), Herefordshire (one), Scotland (two), Ireland (two), after arriving on the south coast; it would have been interesting to trace the line.

DECEMBER.

11th.—S.E. A Little Bustard shot at Caister-by-the-Sea was a male, Mr. Lowne informs me, and had inside it enough carrot- and turnip-tops to weigh five and a half ounces. Four days before another of these winter migrants was shot at the mouth of the Humber ('Naturalist'), which had no doubt come the same journey, but from where is a mystery. The nearest place where any breed, and there only very rarely, is Carentan, near Cherbourg, *vide* Le Mennicier.

13th.—Mr. Cole, of Norwich, received a Fork-tailed Petrel which had been picked up at Brandon, fully forty miles from the sea.

VARIETIES.

Pied varieties of birds are a good deal commoner some years than they are in others, for which there is no known reason; but very few have been heard of in 1902. A cinnamon Starling at North Walsham (W. Lowne), and a cock Redstart† with pale grey wings at Lakenham, are the only ones worth mentioning. The "spangled" Partridge (Zool. 1900, Plate II., p. 97) has not turned up. A Short-eared Owl with more white than usual on the facial disk was shot on Nov. 24th near the sea.

I received through Mr. Reeve a hybrid Linnet × Bullfinch, which had been bred in Norwich by the same successful bird-fancier who sent me one of this same cross in October, 1893. In both instances the Linnet was probably the male parent and the Bullfinch the female (see Norwich Nat. Trans. iv. p. 369), and

both exhibited the Bullfinch's red breast, but had the Linnet's back.

FOOD OF THE QUAIL.

The Rev. M. C. Bird has made an experiment with seeds taken from the crops of two Quails shot last November, mentioned in his notes at the time (Zool. 1902, p. 94). He planted the seeds, and from them reared over fifty plants of the corn-spurrey (*Spergula arvensis*), besides which he found that there were seeds of the white goosefoot, a little wild poppy, about six seeds of the dock, and a labiate or two. This is a very good way of testing what graminivorous birds eat. William Thompson found about 3500 seeds of the pernicious chickweed (*Stellaria media*) in the crop of one Quail killed in Ireland; very few of these would have germinated after being eaten, and this is an instance of what good such birds can do. It is a pity that the attempts to increase the number of Quails in Norfolk by turning down have ended in failure; four hundred released by the King's orders at Sandringham, and two hundred on Holt "lows," soon all disappeared.

ON THE POSITION OCCUPIED BY THE LEGS OF BIRDS DURING FLIGHT.

BY G. E. H. BARRETT-HAMILTON.

DISCUSSIONS dealing with the precise method of the carriage of the legs of birds in flight have, so far as I am aware, only recently appeared in ornithological literature; so that, although no observant field naturalist could feel much doubt upon the question, it can hardly be regarded as altogether decided.

The legs of birds are such important aids to flight, and are so constantly in use when they are on the wing, that it might have been expected that a general paragraph upon the subject would have found a place in some of our text-books; but, beyond the few discussions already alluded to, I have never been fortunate enough to find the matter more than mentioned.

It seems hardly worth while to make an exhaustive search for allusions to the subject. Mr. Ernst Hartert* seems to have been the first to draw attention to it of recent years. The species first critically observed by him were the Common Kites of Calcutta Harbour (*Milvus govinda* and *Haliastur indus*). More recently he had opportunities of studying the flight of the Black Kite on the Rhine, the New-World Vultures of Venezuela, and *Polyborus cheriway* in Curaçao. As a result, Mr. Hartert became convinced that all birds of prey carry their legs stretched out backward, except when they have hold of their prey; and in this respect he classed with them all Waders, Ducks, Herons, Cranes, Storks, Rails, and Game-birds. A similar observation had been recorded by Herr Ziemer† some ten years previously; he had studied the Raptores of Pomerania. Corroboration was afforded by Dr. P. L. Sclater‡ with regard to certain Gulls and the

* 'Ornithologische Monatsberichte,' ii. (January, 1894), p. 5; 'Journal für Ornithologie' (October, 1889), p. 341; and 'Ibis' (January, 1895), pp. 133-135.

† 'Ornithologische Monatsberichte,' 1893, p. 117.

‡ 'Ibis,' 1895, p. 376.

Egyptian Kites of the Nile, and also by myself* with regard to a large Hawk of uncertain species which I observed in Germany.

In 1898 some important notes were published by Mr. Frank Finn,† in which he remarks that it may be taken "as fairly settled that Waders and Waterfowl, Game-birds, Pigeons, and Birds of Prey, carry their feet behind when in full flight, irrespective of the length of those members." Of the short-legged Parrots and *Picariæ*, he gives in detail some interesting observations, and concludes "from these experiences . . . that, supposing the same habit of carrying the feet to run through a family, the forward position of the feet in flight probably characterizes Hoopoes, Woodpeckers, and Barbets, and the backward one certainly obtains among Kingfishers, Rollers, Hornbills, Cuckoos, and Parrots."

Mr. Finn's account of what he saw bears the stamp of reliability. He is particularly careful to describe the difficulties which beset the man who attempts to see the legs—or rather the feet—of even a moderately large bird while in flight; but he took great pains, when unable to satisfy himself out of doors, to let loose a tame bird indoors for purposes of study.

The most important item of Mr. Finn's paper is, I think, his record of the fact that in some species the position of the legs may be varied so as to occupy either the forward or the backward position. Thus, whereas Domestic Fowls, the Crow-pheasant (*Centropus sinensis*), the Koël (*Eudynamis honorata*), and Pigeons in general usually carry their feet forward during their short flights, or, in the case of the latter birds, when starting, they stretch them out behind them when well under way. Lastly, Mr. Finn remarks that since he has "never met with any bird which *first* extends its feet behind and then draws them up," he considers that when he has once seen a bird with its legs in the backward position his observations are "sufficiently conclusive for the species in question, if not for their allies."

Incited in the first instance by the notice of Mr. Hartert's paper in the 'Ibis,'‡ I have during my travels accumulated a

* 'Ibis,' 1895, p. 166.

† 'Proceedings of the Asiatic Society of Bengal,' March, 1898, pp. 105-107.

‡ 'Ibis,' 1894, pp. 557, 558.

good many notes dealing with various birds, which are perhaps sufficiently interesting to bring together here. These were committed to paper in various distant regions as the incidents came before me. They were finally summarized and collected in South Africa before I had read Mr. Finn's paper. I am therefore pleased to find that I not only corroborate his main contention that the position of the feet may vary, but carry it further, showing that (in the case of some of the Gulls at least) the feet may be moved not only from the anterior to the posterior position, but also in the opposite direction.

It seems to me that in steady continuous flight the tibiae of all birds must necessarily occupy a horizontal position pointing directly backward. The position of the metatarsi will depend upon three conditions—that is to say, its length, the shape, structure, and point of juncture of the leg with the body, and the use which the bird makes of it in catching its prey or otherwise. If the metatarsus is very long, as in the Stilts and Herons, the only possible position for it is the horizontal pointing straight backward, where it is probably of considerable use in assisting the short tail. In numerous species again, as in the Albatrosses, the metatarsus is just long enough to cause the feet to project slightly further backward than the ends of the central rectrices. The birds appear at first sight as if their central tail-feathers were somewhat elongated, and no doubt the rudder-like use in flight, of legs of this particular length, is similar to that of the elongated central tail-feathers, which are so common in many birds of strong or unusual powers of flight, such as the Tropic Birds, Skuas, some Bee-eaters and Goatsuckers, and the males of some Honeysuckers.

In birds with still shorter, but yet comparatively long, metatarsi, the legs are carried in the same position, but the feet lie, according to their length of leg, at some point beneath the rectrices. Where the metatarsi are still shorter the position for the feet is near the vent. As examples of the former condition I may quote the larger Gulls, such as *Larus glaucescens* of Bering's Sea, of the latter many of the Auks. Here again the legs are still of considerable assistance to the flying bird, since they may be separated so as to increase the width of the tail; they may be placed both together at one side, or they may be allowed to partially drop

and catch the wind with an effect possibly somewhat like that of the string of a kite. This position is useful for checking speed, but I have most frequently observed it when the bird is struggling to make headway against a strong wind. On such occasions the legs may be constantly in motion, especially in a young Gull new to flight, and not very strong on the wing.

In birds in which the tarsi are very short it is hardly possible that the legs should be extensively used in flight; hence they are, as a rule, snugly packed away with the feet forward, and lie hidden amongst the feathers of the stomach or lower breast. This is, as I have little doubt, the position amongst the Passeres generally, although it is possible that there may be exceptions. The legs, although warm and packed out of the bird's way, are readily available to be let down as occasion may require.

The shape and structure of the leg influence its position in many birds. Thus those which have short legs and large feet, such as *Fuligula*, in which the legs are placed very far back on the body, or those which have very stiff legs like the Grebes, are naturally compelled to carry them in the horizontal backward-pointing position, with the feet lying alongside the short tail.

The Crows and Birds of Prey possess considerable powers of using their feet as hands or grasping organs, when on the wing; yet their method of bearing them when in flight is essentially different.* The ordinary position of the leg in flight is in the case of the former birds the forward, in the latter the backward pointing. But there is considerable power of varying the position, and my friend Mr. J. L. Bonhote informs me that the Merlin carries its legs forward when in pursuit of its prey.

I think that probably the most interesting part of my observations is the fact that in some species the position of the leg may be varied according to the requirements of the moment. Thus the Kittiwake is a strongly flying bird, which habitually makes considerable use of its legs in strong and energetic flights.

* I have seen a Rook using both beak and feet to assist in the manipulation of something which it carried while on the wing; but, whereas such an operation has no effect upon the buoyancy of a Kite, the Rook invariably dropped during the operation, and was forced to discontinue it at intervals in order to maintain its altitude above the ground.

When travelling easily, however, it may tuck its feet comfortably forward under its feathers. It was at St. Paul's Island, one of the Pribiloffs, on the 21st of September, 1896, that I first had my attention directed to this point. I was attracted by the sight of a Black-legged Kittiwake (*Rissa tridactylites pollicaris*, Stejneger) flying with one leg hanging downward as if broken, the other being concealed amidst the feathers. On looking closer at several individuals which were flying about their nests, I found that the legs may be carried in this species either bent forward from the tibio-metatarsal joint, in which case the feet lie at about the posterior end of the sternum, or they may be stretched out straight backward, as in the larger *Larus glaucescens*, only they do not reach so far as in that species, and the feet lie slightly below the base of the tail. The first position appears to be that of greatest ease for the bird. Both legs and feet are then completely hidden under the plumage, and their position can only be ascertained by an observer who is near enough to note the crinkle among the surface feathers at the place where each foot lies concealed. The minute, however, the bird finds it necessary to do any real work—as against the wind, in flying—it calls both legs to its assistance by removing them from amongst the feathers. Every intermediate position is used, and each foot works independently of the other; thus one leg may be packed away, and the other hanging down straight as if broken; or one may be directed horizontally backward while the other hangs down; or again, both may hang downward as when just before alighting.

The above observation was only possible in an extraordinarily favourable locality, where, as I crouched in close proximity to their nests, the birds flew around quite near me. Later the thought struck me that in my observation might be found the explanation of the comparatively numerous Gulls which may be observed in British waters, in localities where they are seldom shot, with a leg hanging downwards as if disabled. It is seldom easy to observe these Gulls closely, and my home is not at the seaside. It was not then until July, 1899, that an invitation to join my friend Mr. Henry Evans on a cruise in his steam-yacht 'Aster' gave me the chance for which I wished. I was then able to definitely ascertain, that what I had observed in the Kittiwake

wake occurs also in the Herring-Gull. In the presence of Mr. Evans I was able to observe Herring-Gulls flying without visible legs, or with only a ruffle on the feathers to indicate where the legs were hidden. Lastly, Mr. Evans was so fortunate as to observe a bird actually tuck up its leg while he looked at it.

Nothing could be more striking in illustration of the great and constant assistance which the legs of birds afford to their wings in flight. It is almost as if, to some birds, the legs are nearly more important as organs of flight than of progression on land.

No more interesting birds exist than the Kites for the purpose of observations of the present kind. Where food is abundant, as in Cairo or Bombay, or in many harbours, as those of Japan, their graceful evolutions may be watched for hours. Kites have considerable power of movement of their legs while on the wing. They can pick up, carry, and even eat their food while in the air. On the other hand, the legs are not long enough to oust the long forked tail in its varied functions, since they reach only to about the base of the rectrices when pointing backward. After watching Kites on numerous occasions I at length came to the conclusion that the posterior position of the legs is for them the normal one. I thus agree with other writers; but I was so long in coming to this decision, and I made so many contradictory observations, that I feel sure that Kites, like Gulls, can use either the backward or the forward position.

The tail of a flying Kite is constantly undergoing slight modifications or alterations of position. Besides changes in the amount of expansion, it is constantly changing its plane, now in one direction and now in another, evidently with a rudder-like effect or action. The need of a rudder of some kind seems to find its satisfaction in length of tail* or of leg, but it is curious that so many of the most powerful and persistent fliers should possess very short legs, which must be quite useless for purposes of flight. In these, however, I think, it will be found that there

* In mammals a long tail may be used as a rudder. The late Sir Samuel Baker remarks that the Cheetah (*Felis jubata*) is assisted by its tail when turning sharply at full speed, although he does not state exactly how (*cf.* 'Wild Beasts and their Ways,' p. 168), and I have personally observed a similar function in the (in life) beautiful tail of the South African Ground Squirrel (*Xerus capensis*).

is nearly always a long or frequently a forked tail, the forks of which are similar in their action to the long legs of other species. But mere soarers and gliders, of however powerful and enduring flight, such as the *Cathartidæ* or *Vulturidæ*, should be clearly distinguished from birds which twist and turn frequently, such as the Swallow-tailed Kite (*Elanoïdes*), or the *Hirundinidæ* or the *Cypselidæ*. In the former there is no need for a forked tail, a feature which is so frequent amongst the latter. Further, it must be remembered that even amongst such constant fliers as the Swallows, the power of flight is by no means of universally equal strength amongst all the forms. The long wings, and deeply forked tail, of our own Swallow represent an immense gulf, as regards powers of flight, between it and such comparatively feeble fliers as the South African Cliff Swallow (*Petrochelidon spilodera*), in which both wings and tail are short, and the tail square.

I have been at the pains to bring together in a list, the majority of swiftly or erratically flying families in which the tail is forked, or the legs long, excluding on purpose such merely powerful and sustained fliers as the Herons, Storks, Cranes, Vultures, Condors, and the like. An examination of these shows that, while the *Fregatidæ* have all a forked tail, it is only in certain representatives of other families that the fork is present, as in *Oceanodroma* amongst the Petrels; in *Milvus*, *Lophoictinia*, and *Elanoïdes* amongst the *Falconidæ*; in *Glareola*, in *Xema*, *Hydrochelidon*, *Nania*, and *Rhynchops* amongst the Gulls and Terns and their allies; in *Dicrocercus* amongst the Bee-eaters; and in certain of the *Caprimulgidæ*, *Cypselidæ*, *Hirundinidæ*, and Humming-birds. In some forms, on the other hand, the same purpose seems to have been effected by the medium of two or more elongated tail-feathers; such are the *Phaëthontidæ*, *Stercorarius*, *Merops*, and *Meropogon*, and the males of some of the *Nectariniidæ*. Amongst those which perform great feats of flight, yet have no fork, the *Diomedeinæ*, *Oceanitinæ*, *Procellariinæ*, and *Pelecanoidinæ* (except *Oceanodroma*) are remarkable, but in this case the majority possess long legs, and *Phoebetria* a long tail. Most remarkable of all is, I think, the entire absence of a forked tail amongst groups such as the *Accipitrinæ* and *Falconinæ*, in which the powers of flight have been so strongly developed.

In the following list will be found the forms in which I have personally observed the method of the carriage of the legs. To make it the more complete I have added the species or groups which have fallen under the observation of other naturalists.

LEGS CARRIED POINTING BACKWARD IN :—

PODICIPEDIDÆ.

Colymbus septentrionalis.

Podiceps cristatus (legs well visible behind tail) (E. Hartert, in lit.).

DIOMEDEINÆ.

Diomedea albatrus (reach behind tail).

D. nigripes (reach behind tail).

OCEANITINÆ OR PROCELLARIINÆ.

Some species of Storm-Petrel unknown, observed by me in the North Atlantic, must be added to this category.*

PROCELLARIINÆ.

Fulmarus glupischa.

Macquaque-like Petrel of Cape Seas.

PHAËTHONTIDÆ.

Phaëthon sp. ? of China Seas (feet conspicuously borne near base of tail).

SULIDÆ.

Sula bassana.

S. capensis (feet carried near base of tail).

S. leucogaster.

PHALACROCORACIDÆ.

Phalacrocorax urile.

P. perspicillatus.

All species (E. Hartert).

ARDEIDÆ.

All species (E. Hartert). Legs and feet project behind tail.

Ardetta (S. African species).

Nycticorax (S. African species).

N. griseus (E. Hartert, in lit.).

Ardea bubulcus.

A. cinerea.

A. purpurea (E. Hartert, in lit.).

A. goliath.

A. melanocephala.

A. garzetta (E. Hartert, in lit.).

Herodias lucidus.

H. brachyrhynchus.

SCOPIDÆ.

Scopus umbretta (feet under tail).

CICONIIDÆ.

Ciconia alba (feet behind tail).

C. nigra (E. Hartert, in lit.).

Pseudotantalus ibis (feet behind tail).

Comatelis eremita (E. Hartert, in lit.).

IBIDINÆ.

Ibis athiopica (feet behind tail).

PLATALEINÆ.

Platalea leucorodia (fide J. H. Gurney, 'Zoologist,' March, 1896, p. 112).

ANATINÆ.

All species (E. Hartert).

Fuligula cristata (E. Hartert, in lit.).

Spatula clypeata (E. Hartert, in lit.).

Anas boscas, and a S. African Duck, probably *A. undulata*.

* The smaller Petrels are well known to make a most active use of their legs while on the wing, often dangling them beneath them, or seeming to walk on the water like an Albatross. See Mr. Ogilvie Grant's account of the Frigate Petrel, *Pelagodroma marina*; "On Birds observed at the Salvage Islands," 'Ibis,' January, 1896, p. 51.

Chenalopex aegyptiaca.

ANSERINÆ.

Branta canadensis hutchinsii.

Plectropterus sp.

Anser albifrons gambeli.

Tame Geese.

SERPENTARIIDÆ.

Serpentarius secretarius (legs and feet project behind tail).

VULTURIDÆ.

Species unidentified of Bombay and S. Africa.

POLYBORINÆ.

Polyborus cheriway (E. Hartert).

ACCIPITRINÆ.

Spilornis cheela (E. C. Stuart Baker, quoted by E. Hartert).

AQUILINÆ.

Haliaëtus albicilla (E. C. Stuart Baker, quoted by E. Hartert).

Polioëtus plumbeus (E. C. Stuart Baker, quoted by E. Hartert).

BUTEONINÆ.

Buteo buteo (E. Hartert, in lit.).

B. desertorum.

Haliastur indus (E. Hartert).

Milvus govinda (E. Hartert).

M. migrans (E. Hartert).

M. melanotis and other species (feet do not reach base of tail).

Elanus cæruleus.

FALCONINÆ.

Tinnunculus amurensis (E. C. Stuart Baker, quoted by E. Hartert).

T. cenchris (E. Hartert, in lit.).

T. tinnunculus (E. Hartert, in lit.).

Æsalon regulus (probably variable, since Mr. J. L. Bonhote informs me that the legs are carried forwards when in pursuit).

PANDIONIDÆ.

Pandion haliaëtus (legs under tail).

"GAME-BIRDS."

All species (E. Hartert).

NUMIDINÆ.

Numida coronata.

PHASIANINÆ.

Phasianus colchicus (E. Hartert and the Hon. W. Rothschild, in lit.),

P. torquatus (fide F. Finn, also E. Hartert and Hon. W. Rothschild, in lit.).

Domestic Fowl (fide F. Finn).

TETRAONINÆ.

Perdix perdix (E. Hartert and Hon. W. Rothschild, in lit.).

Tetrao urogallus (E. Hartert).

RALLIDÆ.

All species (E. Hartert).

Gallinula chloropus.

Fulica atra.

F. cristata.

GRUIDÆ.

Grus sp. of S. Africa.

OTIDIDÆ.

Trachelotis cærulescens.

T. barovii (legs carried beneath tail, but when rising may be bent forward so as to make it seem possible that they might be carried in the forward position).

Eupodotis kori.

Compsotis leucoptera.

"WADERS."

All species (E. Hartert, in lit.).

CHARADRIINÆ.

Ægialitis pecuaria.

Oxyechus tricollaris.

Vanellus cristatus (feet reach behind tail).

Stephanibis coronatus (feet reach behind tail).

Hoplopterus speciosus (feet reach behind tail).

Himantopus candidus.

TRINGINÆ.

Totanus calidris.

T. ochropus (E. Hartert, in lit.).

T. stagnatilis.

Pavoncella pugnax (feet project behind tail).

Numenius arquata.

GLAREOLIDÆ.

Glareola pratineola (E. Hartert, in lit.).

Cursorius rufus (feet project behind tail).

ÆDIGNEMIDÆ.

Ædignemus capensis (feet project behind tail).

STERCORARIINÆ.

Stercorarius parasiticus.

LARINÆ.

Rissa tridactylites pollicaris (position variable, see above).

R. brevirostris.

Larus glaucescens.

L. argentatus.

L. marinus.

L. schistisagus.

L. occidentalis.

L. ridibundus.

L. melanperus.

Legs and feet generally reach to about base of tail.

STERNINÆ.

Probably all species.

ALCIDÆ.

Lunda cirrhata.

Fratercula arctica.

F. corniculata.

Cepphus columba.

C. carbo.

C. snowi.

Uria troile.

U. arra.

The family generally (F. Finn).

COLUMBIDÆ.

Columba palumbus.*

C. domesticus; feet visible near base of tail (observation confirmed by E. Hartert and Miss E. Theys).

CUULIDÆ.

Eudynamis honorata (F. Finn).

PSITTACIDÆ.

Palæornis torquatus (F. Finn).

* Until I had read Mr. Finn's paper I had placed the Pigeons amongst those birds which carry the feet forwards, as I had undoubtedly observed them in that position. Adopting this naturalist's suggestion that the legs are changed from the forward to the backward position when in full flight, I carefully watched a flock of tame Pigeons, and am happy to be able to corroborate his remarks. After I had written my own paper, I obtained leave to submit it to Mr. E. Hartert, the originator of the discussion. Mr. Hartert, although at first sceptical, has now also satisfied himself of the truth of Mr. Finn's observations, and has obtained independent corroboration from a sharp-sighted friend of his, Miss E. Theys. I have also to thank Mr. Hartert for several suggestions, for the discovery of one or two slips, for a good many additions to my list of species observed in flight, and for his kindness in reading my paper while in manuscript.

I was particularly pleased with the knowledge and accuracy shown by Japanese artists when depicting flying birds. The temple decorators of old Japan seem to have held very sound views on this subject—far sounder than many of our modern artists, taxidermists, and even (occasionally) our museums. In the Sighasi Otanu Temple at Kyoto small carved birds, said to have been finished some three hundred years ago, are represented in flight with legs half doubled up, the feet forward; crested water birds of some species with which I am not acquainted and the imaginary "Phoenix Bird" carry the legs stretched out stiffly behind them, with the toes folded and forming a knob at the end of the leg.

The drawing of a white-fronted Goose in the Chionin Monastery, rebuilt in 1630, at Kyoto, and attributed (as far as I could make out the name from

ALCEDINIDÆ.

Ceryle rudis (F. Finn).

Alcedo ispida (F. Finn).

Halcyon smyrnensis (F. Finn).

Dacelo gigas (F. Finn).

BUCEROTIDÆ.

Anthracoceros sp. (F. Finn),

LEGS CARRIED BENT FORWARD IN :—

FALCONINÆ.

Æsalon regulus (legs carried forward in pursuit, J. L. Bonhote).

C. splendens.

C. beringianus.

C. corax.

C. capensis.

MOTACILLIDÆ.

Macronyx capensis.

UPUPIDÆ.

Upupa epops (F. Finn).

STURNIDÆ.

Spreo bicolor.

CYPSELINÆ.

Cypselus caffer.

TURDIDÆ.

Turdus merulus (fide J. L. Bonhote).

CAPITONIDÆ.

Theriaceryx zeylonicus (fide F. Finn).

HIRUNDINIDÆ.

Ptyonoprogne fuligula.

PICIDÆ.

Brachypternus aurantius (F. Finn).

CORVIDÆ.

Corvus frugilegus.

my guides) to a well-known artist named Kanomotonogo, seemed to me to be remarkably good. The bird is about to alight, and is in the act of extending its legs slightly forward before doing so.

In the "Bamboo Room" of the Hongali Temple, also at Kyoto, and said to be three hundred years old, the legs of the Japanese Sparrow are portrayed in flight as bent partially forward. In the "Wild Goose Room" of the same temple some excellent examples of Geese are drawn in various characteristic positions, as with legs trailing when about to alight, or stretching backward, but below the horizontal, when arising from the ground. Evidently the Japanese artists clearly recognized the different carriage in flight of the legs of such totally distinct birds as a Goose and a Sparrow, although in the case of the imaginary Phoenix Bird there might well be room for a variety of opinions.

NOTES AND QUERIES.

MAMMALIA.

The Occurrence of *Mus sylvaticus wintoni*, Barr.-Ham., at Tostock, Suffolk.—It has long been known that examples of a species of the genus *Mus* differing little except in size from the common Long-tailed Field-Mouse (*Mus sylvaticus*) have from time to time been met with, and till recently they have generally been regarded as individuals of a large race of this species. So recently as December, 1894, Mr. W. E. de Winton, in the pages of this Journal (Zool. 1894, pp. 441-5), gave a minute description of this variety, which he considered as identical with *M. flavicollis* of Melchior;* but the then editor of 'The Zoologist,' in a footnote to the article, expressed an opinion that the skins shown to him by Mr. de Winton, as well as those described by Melchior, were "nothing but a large variety of *M. sylvaticus*," but that Mr. de Winton did well to bring the subject once more under the notice of naturalists. And so the matter remained till March, 1900, when Mr. Barrett-Hamilton contributed a valuable paper to the 'Proceedings of the Zoological Society of London,' "On Geographical and Individual Variation in *Mus sylvaticus* and its Allies,"† in which, after a most exhaustive examination of a large series of Long-tailed Field-Mice from many localities, "almost conterminous with the limits of the Palearctic Region," he arrived at the conclusion, and I think justly, that this large variety differs so essentially from *M. sylvaticus typicus* as to be worthy of the rank of a subspecies, and he conferred upon it the name of *Mus sylvaticus wintoni*, in recognition of Mr. de Winton, who first pointed out its subspecific value. In Mr. Barrett-Hamilton's survey of the large series of this widely distributed species, numbering 580 examples, he recognizes no fewer than nineteen subspecies or phases, all of which can be identified as modifications of the original type as known to Linnæus. I am indebted to the kindness of Mr. G. T. Rope for the opportunity of examining one of these interesting animals, which was sent to him by the Rev. J. G. Tuck, of Tostock Rectory, near Bury St. Edmunds, Suffolk, where it was killed

* 'Den danske Stats og Norges Pattedyr,' p. 99, pl. 1 (1884).

† P. Z. S. (1900), pp. 387-428, pl. xxv.

on the 14th March; and, although it has been met with in that county on a previous occasion, I am induced to trouble you with these particulars, hoping that it may be detected and recorded from other localities, as it seems probable that it will prove to be widely distributed in this country if looked for. Mr. Barrett-Hamilton mentions that he has seen specimens from Herefordshire, Northamptonshire, Sussex, Suffolk, and Northumberland.

Except in size and superior length of tail this animal much resembles *M. sylvaticus*; the adult is a very handsome animal, a beautiful chestnut colour on the sides, the hairs of the back tipped with grey giving it a slightly darker tinge on that region, and the throat and lower parts very pale grey, almost white, the demarcation between the two colours being abrupt and striking. On the white breast is a patch of orange colour extending along the forearms, and forming a complete collar; this colouration also extends a short distance towards the throat and in the reverse direction along the sternum, forming a conspicuous cross-shaped breast-plate. The whiskers are long, eyes large and bright, and the ears large. Mr. de Winton mentions that among other structural peculiarities the tail is made up of thirty vertebrae, whereas in *M. sylvaticus* he has never found more than twenty-seven.

The measurements of the Tostock specimen, given in millimetres, were as follows. In the second column are the corresponding measurements of Mr. de Winton's male specimen, and in the third those of a typical *M. sylvaticus*.

	<i>M. wintoni</i> , adult ♂.	<i>M. sylvaticus</i> , adult ♂.
Head and body.....105	110	97 mm.
Head 30	—	—
Ears 18	18	17 mm.
Tail .....120	112	85 mm.
Hind foot 24	24	23 mm.

—THOMAS SOUTHWELL (Norwich).

AVES.

Great Grey Shrike in West Suffolk.—About Feb. 20th a very perfect specimen of the Great Grey Shrike (*Lanius excubitor*) was shot at Great Barton, and sent to Bury for preservation. It is a fine old male of the form known as Pallas's Grey Shrike, with one white wing-spot, the back a delicate pearl-grey, the rump nearly white, and no trace of

any markings on the under parts. This is, I believe, the first occurrence of this species in West Suffolk since November, 1899.—JULIAN G. TUCK (Tostock Rectory, Bury St. Edmunds).

The Status of the Goldfinch (*Carduelis elegans*) in Britain (*cf. ante*, pp. 23, 70, and 104).

North Oxfordshire.—The Goldfinch (as a resident species at all events) is more common than it was twenty or five-and-twenty years ago. It is now fairly common as a breeding species, but its numbers are liable to be temporarily reduced by severe winters—*e.g.* 1890–1 and the early part of 1895, when the resident race appeared to be nearly exterminated. In the spring of 1896 (I was abroad in the spring of 1895) I could see none about this village until April, although there were a fair number about in the latter part of that month.

West Carnarvonshire (Lleyn).—Fairly common, and, I believe, resident. I have often seen it in the breeding season, and have found the nest; but I have only once been in Lleyn in the winter, when I saw a charm of six Goldfinches one day early in February, 1903.

West Merioneth.—I have spent about three weeks in this district in May and June in the years 1900, 1901, and 1902, but I cannot recollect seeing a Goldfinch during those periods; but a good many years ago—on the 15th October, 1884—I saw about a dozen near the sea at Llwyngwril, and I am told that the Goldfinch has been known to breed near there.—O. V. APLIN (Bloxham, Oxon).

Arrival of the House-Martin.—I saw a single House-Martin (*Chelidon urbica*) flying about close to the sea at Mundesley, Norfolk, on the 27th of last month (March).—BERNARD B. RIVIERE (Flaxley, 82, Finchley Road, N.W.).

Hen-Harriers in Dorset.—While staying in Dorsetshire in January last I came across a pair of Hen-Harriers (*Circus cyaneus*). When first seen they were too far off to identify, and I thought possibly they might be a pair of Montagu's Harriers wintering here, as they breed more frequently in the county than the Hen-Harrier, and one has been obtained as late in the year as Nov. 26th (*cf.* 'Birds of Dorset,' by the late J. C. Mansel Pleydell). However, one day I disturbed the male bird, and, happening to be hidden under a bank when he returned, had a good opportunity of observing the greater stoutness of build as he sailed round and about, no doubt trying to see if the intruder had departed. Two or three winters ago a neighbouring keeper told me that a pair of Harriers were continually worrying the Teal that frequented a pond on his beat; he called them Montagu's Harriers,

which he had seen about in the summer, but no doubt they were of this species, possibly even the same pair.—ARTHUR BANKES.

Early Nesting of the Shag (*Phalacrocorax graculus*).—In 'The Zoologist' for 1890 (p. 388) I inserted a note on the number of eggs laid by the Shag. Up to that date the number in my experience had never exceeded three. Mr. Ussher, in an interesting note on the Shag in Ireland in reply to mine, stated that he had often seen Shags' nests containing four eggs. Incidentally he gave the date of the birds' laying, a much earlier date than that usually given in ornithological text-books. This date was the 15th April, and that for the young 14th May (not 11th, as quoted in Saunders's 'Manual'). I had no opportunity of further experience of the subject till 1895, when I paid a short visit to the Shetlands. In 'The Zoologist' for 1895 (p. 348) will be found another note on the nesting of the Shag. On the 6th of May, on the island of Ross, several nests already contained young, and I estimated that some at least of the birds must lay as early as the end of March. This year I paid a visit to a small breeding colony on the south-east coast of Scotland on the 29th of March. The colony numbers six pairs, which nest on ledges of a steep cliff overhanging the sea. Most of the nests, however, can be easily seen with a glass from further along the coast. I was somewhat surprised to find laying already almost completed. One nest contained three eggs; one nest contained two eggs; two nests contained one egg each; one nest ready but empty; one could not be seen into, but the bird stayed on as if sitting. This is much the earliest date that I have heard of, but possibly some of the correspondents of 'The Zoologist' may have known of others as early, as it cannot, I think, be really exceptional, despite the very much too late date usually accepted.—HAROLD RAE BURN (Edinburgh).

The Rock-Dove (*Columba livia*) in Somerset.—With reference to the note on this subject (*ante*, p. 108), may I point out that the Rev. Murray A. Mathew, when he published his 'Revised List of the Birds of Somersetshire,' did not believe in the existence of the genuine *wild Rock-Dove* as a Somerset breeding species; and he only included the name of the species between brackets among those birds which "are of doubtful authority for their occurrence"?—O. V. APLIN (Bloxham, Oxon).

Great Bustard in Ireland.—Two large birds were observed frequenting some fields near Thurles, Co. Tipperary, during the month of December, 1902. On the 20th one fell to the gun of a farmer's son,

who thought it was a Wild Goose ; it was sent to us for identification, and proved to be a female Great Bustard in excellent plumage. Its stomach contained turnip-tops. This, we believe, is the first record of this species in Ireland. The gentleman who turned down the Great Bustards in Norfolk has carefully examined the specimen, but cannot identify it as one of his birds. — WILLIAMS & SON (2, Dame Street, Dublin).

Stone Curlew in Merioneth. — A specimen of the Stone Curlew (*Edicnemus scolopax*) was shot at Towyn on Jan. 6th by Mr. D. W. Kirkley, who informs me that when first noticed it was feeding in a turnip-field. It whistled as it flew swiftly by, and was shot on the wing. The wind was south-east, and there was a frost that morning. This is the first example of the bird recorded in North Wales.—H. F. FORREST (Bayston Hill, Shrewsbury).

Purple Sandpiper (*Tringa striata*) in Anglesey. — As this bird appears to be somewhat rare in Anglesey, it may be worth recording that on March 18th I saw a fine specimen on Dinas Frefriw, a rocky promontory south of Aberffraw Bay. It allowed me a near approach and time for inspection before taking flight, as is often the case with this species.—S. G. CUMMINGS (King's Buildings, Chester).

Protection of Red-throated Diver at its Irish Breeding-place.—Mr. W. C. Wright's "Ornithological Notes from Co. Donegal" (*ante*, p. 89) aroused my mingled feelings of indignation and regret when I read his sad account of the continued persecution of the Red-throated Divers (*Colymbus septentrionalis*) at the only breeding-place in Ireland at present known to naturalists—two clutches taken from the *one* pair of birds, and the third, of which Mr. Wright saw the product ; one bird, probably escaping the hands of the depredator, owing to the vigilance of the keepers preventing the eggs being taken by the boatman, who related to Mr. Wright his glorious exploit of swimming out to the island on which the nest was situated and taking the eggs. It is really a scandalous state of things that dealers, egg-collectors, and self-dubbed naturalists, should hasten the extermination of our rarer birds by offering such large bribes to poor persons as tempt them to harry the nests of birds even in preserved districts ; for instance, the fact related by Mr. Wright of the old woman who was paid thirty shillings for the clutch of four Chough's eggs. However, I am happy to say that the facts stated by Mr. Wright have so aroused the indignation of Mr. Herdman, the owner of the shooting and lakes, that he has issued strict orders to his keepers for the preservation of the Divers, and to prevent the visits of these predatory gentlemen to the district, who if

met on the "prowl" will receive the warm welcome of a prosecution for trespass and law-breaking.—ROBERT WARREN (Moy View, Ballina).

Birds killed by Ticks.—In reference to the note on the above subject by Mr. W. S. M. D'Urban (*ante*, p. 108), I may state the following experience. On April 19th, 1884, during a voyage to Calcutta, and while in the Red Sea—one day out from the Suez Canal, I shot on the deck either a White Wagtail (*Motacilla alba*) or a very nearly allied species. The Wagtail had several brownish-grey Ticks adhering to its head in the neighbourhood of the eyes, but the eyes themselves were uninjured. The bird was obviously ill, much exhausted, and in wretched plumage. I did not preserve its skin, which I now regret.—J. E. H. KELSO (Chesterfield, Elm Grove, Southsea).

The Birds and other Animals of Thetford Warren.—An article on Thetford Warren (*ante*, p. 100) in some particulars seems so unfair to my friend Mr. W. Dalziel Mackenzie, the owner of this warren and the adjoining property, that I cannot help asking you to kindly insert this letter. At pages 102–3 Mr. Clarke remarks: "A somewhat similar attempt was made in 1885 to acclimatize Black Grouse, but the half-dozen turned out in the autumn did not survive the winter." This statement is inaccurate, as not only in 1885, but for many years after, Mr. Mackenzie spared no expense in turning down Black Game, "not half a dozen in the autumn," but upwards of twenty in a single season; not only did they "survive the winter," but many winters, and several nests were hatched off, although it seems doubtful if any young arrived at maturity. When covert-shooting on this estate I have often seen half a dozen in the day. In May, 1896, I flushed thirteen hens in one small flock. During the last few years the numbers have decreased in spite of fresh birds having been turned down almost every season (I believe the last in 1900). After this very exhaustive experiment it seems useless to continue.

On p. 108 your contributor remarks: "Lapwings have decreased in numbers of late years, chiefly owing to those who consider their eggs a delicacy, and so make collecting profitable." This statement might be taken to imply that my friend allows the eggs to be collected. This is not the case. No Plovers' eggs have been taken on the Thetford property for many years with the sanction or knowledge of the owner, and any keeper found molesting these birds would be instantly dismissed. No doubt the Green Plover has decreased in numbers during the last few years, but not from this cause. The Norfolk Plover has increased, thanks to efficient protection during the breeding season; in fact, every interesting bird can find a haven of refuge on

this property. Neither Hawks nor Owls are destroyed, and that indiscriminate engine of torture and destruction, the "pole-trap," is unknown. Would that we could say the same of all Norfolk and Suffolk! It may interest your contributor to learn that Roe-Deer have been most successfully introduced into the Warren Woods; they have bred freely, and are well on the increase.—HEATLEY NOBLE.

The following are extracts from a letter received by Mr. Heatley Noble from the owner of Thetford Warren:—

"A few Black Game were turned out in 1885; a much larger number were imported in 1886-87, some of which were liberated; others kept in a pen, where they did well. A fine cock was inadvertently shot by the tenant of Croxton Hall Farm (Mr. Cole, jun.). Some of the Black Game turned out remained at Two Mile Bottom, others crossed the river to the Warren in 1888 and subsequent years. The following were accidentally shot: in 1890 one cock and two hens, in 1894 one hen, in 1895 two more hens. About one hundred were turned down one year later, but most of these (their wings being cut) were killed by Foxes during a snowstorm immediately after arrival. Almost every year from 1897 to 1900-1901 a number were imported from Norway, thirty in the last season. No doubt a few were killed on the neighbouring estates, although very few died from natural causes. Broods hatched off regularly, but seemed to disappear in some unaccountable manner. A clergyman, near Norwich, informed me a brood of young appeared with the hen in his garden. The old birds remained in some numbers until one year some heather-burning was done. The smoke seemed to frighten them, and they were noticed getting up higher and higher, and eventually disappearing. Those turned out since have mostly gone. Where do they migrate to? Everything possible was done for the birds. Their surroundings appeared to be eminently suitable—junipers, birch, fir, rushes, grasses of many kinds, bracken, heather abound, and bog-myrtle was planted in suitable places. The river Little Ouse runs through the estate. A few Black Game still remain.

"In 1888-89 many Sand-Grouse were noticed, and one was shot by accident. In 1891 five Whoopers were unfortunately shot out of a herd of seven. In the early sixties the Peewit was very common on the Warren, and as many as 280 dozen eggs were sent to market every year. They, however, decreased enormously about twenty-five years ago, although no eggs were ever taken after May 1st. The numbers fell to sixty dozen, twenty dozen, and the last year they were collected the produce was only six dozen. Since that time none have been

taken, the proprietor having given strict orders for their protection, but the Peewit can now only be numbered by a few dozen pairs. The same scarcity is apparent in several districts; (March 19th) many Peewits are hanging up in the poulterers' shops in Bath. In another week or two eggs also will be on sale! The birds may be foreign, but what difference does this make? Only that there will be fewer to migrate to these shores. There used to be three 'stands' of Golden Plover on the Warren; planting has destroyed one if not two of these sites, but it is probable that they still frequent the ground.

"Rough-legged Buzzards were quite common in the winter twenty or twenty-five years ago. I have often seen several on the wing at the same time. An Eagle frequented the Warren for two winters between 1870-80. Roe-Deer obtained from Würtemberg have been turned down in the young Warren Woods, and have increased considerably."

W. DALZIEL MACKENZIE.

Ornithological Notes from Shetland.—

RED GROUSE (*Lagopus scoticus*).—Two seen, Nov. 16th, 1902.

ARCTIC SKUA (*Stercorarius crepidatus*).—One flew over my head on Nov. 23rd, 1902; this one was of the dark variety. Several others were reported to me along the east side of Shetland from same date and up till Dec. 6th.

LAPWING (*Vanellus vulgaris*).—A few seen from Nov. 22nd till Dec. 30th. One at west side of the island on March 10th. Another specimen which was rescued from a "hawk" (Peregrine?) brought to me alive on March 14th. Its right wing was broken, and part of the "scalp" on the same side torn up. I kept the bird for one day, but, though it ate readily some small worms and ran about freely at first, it gradually became weaker, and developed fits, falling over to the left side and turning round and round (always to the left), and died next day.

ICELAND GULL (*Larus leucopterus*).—One (a male) brought to me; several others seen Dec. 12th.

WHOOPEE SWAN (*Cygnus musicus*).—On Dec. 18th, at 8.30 a.m., nine flew past my house in a S.W. direction; they rested for a few minutes on a small sheet of water about a mile away, but, being disturbed, rose and flew off to the southward.

CHAFFINCH (*Fringilla caelebs*) and SNOW-BUNTINGS (*Plectrophenax nivalis*) have not been nearly so plentiful as usual.

RAZORBILLS (*Alca torda*) and COMMON GUILLEMOTS (*Uria troile*) have been very plentiful.

LITTLE AUK (*Mergulus alle*).—A few seen; one (a young male) obtained.

SONG-THRUSH (*Turdus musicus*). — One seen on Feb. 20th taking shelter from heavy storm under lee of turf-dyke close to road.

MOORHEN (*Gallinula chloropus*). — An immature male caught on Feb. 25th.

SNOWY OWL (*Nyctea scandiaca*). — Seen at intervals since March 6th. This Owl is becoming very rare.

Note.—Of the many specimens of Razorbills obtained, I kept four, after careful dissection of many. Of these, two mature ones (a male and a female) have no white line from eye to bill, one mature male has the line well marked, while a young female has also a well-marked line. All the other specimens, old and young of both sexes, had the line. I have never till now come across specimens of the Razorbill without this white line from eye to bill, though my late father, in his 'Birds of Shetland,' p. 314, mentions having got one (a female) with this line wanting. Another rather curious specimen came into my hands on Jan. 29th, viz. a Guillemot, whose appearance puzzled me very much. I here give a rough description of the bird:—General colour above deep black, lower throat black, upper throat white, chin black. There is no white mark extending down sides of neck from behind the eye. The bill is much blacker at the base than in the Common Guillemot; it is also much heavier than in this variety, but not nearly so strong as in Brünnich's Guillemot, which, by the way, I have never seen alive. A faint white line extends along the lower edge of the upper mandible from nostril to gape. Under wing-coverts white and brown, brown at edge of wing. Bases of outer primary-shafts white. Sides of body washed with sooty marks, and feathers edged with black, as in Common Guillemot. Legs and feet a dark "jaundice" colour, webs darker. Length, $17\frac{1}{2}$ in. from tip of bill to tip of tail. I thought the bird might be an immature Brünnich, but never having seen one in the flesh I sent the specimen to the Rev. Julian G. Tuck, who thinks it may be a hybrid between the Common and Brünnich's Guillemot. In all probability he is right, as the bird certainly shows characters of both varieties in the way of colour, marking, &c. — T. EDMONSTON SAXBY (Halligarth, Baltasound, Shetland, N.B.).

EDITORIAL GLEANINGS.

WE have received the Fourth Annual Report of the Director, Capt. Stanley S. Flower, on the Zoological Gardens of Giza, near Cairo. The following is a most interesting note on the Shoebill, or Whale-headed Stork (*Balæniceps rex*):—

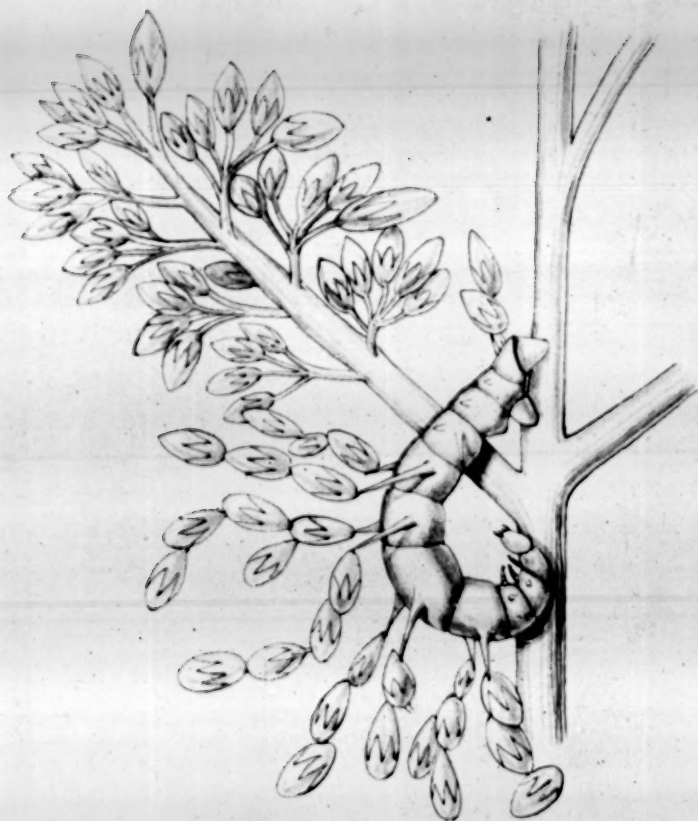
“Two individuals were purchased by the Zoological Society of London in April, 1860 (*vide* P. Z. S. 1860, p. 243), from Mr. John Petherick, then H.B.M. Consul for the Sudan, who had obtained them in the Sudan, having hatched them from eggs ‘procured from the Raik negroes . . . at a considerable distance from Gaba Shambyl’; these two were the survivors ‘out of six *Balæniceps* shipped at Khartoum, but perhaps out of a score partially reared’ (*vide op. cit.* pp. 195–199). These were the first specimens of this most extraordinary bird ever brought alive out of the Sudan, and, as far as is known, no others have been till the three, now living in the Giza Zoological Gardens, were brought down forty-two years later. In the autumn of 1901 Col. W. S. Sparkes brought a live *Balæniceps* from the Bahr-el-Ghazal to Khartoum, where it is still living in the Governor-General’s Palace garden. This is the only other specimen known to be living in captivity. The three birds now at Giza, presented by Slatin Pasha and Bimbashi Fell, were obtained by the donors from the Bahr-el-Djur, in the Bahr-el-Ghazal province of the Sudan, and were kindly looked after by Mr. A. L. Butler, Superintendent, Sudan Game Preservation Department, till handed over to the Giza Zoological Gardens keepers at Khartoum, May 15th, 1902.”

A CURIOUS accident recently happened near Nantwich. While the butler of Mr. A. N. Hornby, the well-known cricketer, was cycling downhill he received a severe blow on the neck, which knocked him off his machine. He was stunned, but, recovering himself, found on the road where he was struck a dead Partridge. The bird had got up suddenly, and in its swift flight over the road had charged into the cyclist and broken its neck. It is by no means an uncommon occurrence for a Sparrow to fly against a cyclist, but it has rarely been known to happen to a Partridge.—*Sun.*

At the meeting of the Zoological Society held on March 17th last, Mr. J. T. Cunningham read a paper in which were described experiments he had made on two cocks of the Long-tailed Japanese Fowls in his possession, to ascertain what effect the artificial treatment asserted by some to be practised by the Japanese fanciers would have. The two birds had been hatched on the same date (Jan. 13th, 1901). One of the birds was left to nature, except that the tail was tied up in paper when the bird was at liberty, to keep the feathers from injury. In this bird the longest feather was 2 ft. 4½ in. in length in 1902, and growth ceased in March, and the feathers were moulted normally in the following autumn. In the other bird the feathers were stroked every day between the finger and thumb so as to pull slightly on the roots. In this specimen growth continued till the middle of July, and a length of over 2 ft. 9 in. was attained in some of the feathers of the first adult plumage. The author considered still more important the fact that ten of the feathers came out under the treatment, and that successors to these immediately grew again, and continued to grow through and beyond the following moulting season. The author concluded that the great length of feather and suppression of the moult were produced by the Japanese fanciers in the same way, by thus stimulating the feathers, and extracting them when or before they had completed their growth.

On March 24th a meeting was held at Belfast in the Museum, College Square, for the formation of an "Ulster Fisheries and Biology Association." Prof. Gregg Wilson, Prof. Milroy, C. M. Cunningham, and W. Rankin were elected members of the Council, and Mr. Hugh H. Smiley the first President of the Association. The Earl of Shaftesbury, who was the chairman of the meeting, stated that the object of the Association was to investigate the flora and fauna of the local shores and fresh-water loughs. Prof. Gregg Wilson remarked:—"The day when everyone would be a good bit of a naturalist was coming very soon. In particular the study of plants and animals in their natural environment, in their homes, was to be specially encouraged. In the not very far distant future the Association hoped to have an aquarium for the study of living animals. They had arranged for the first distinct bit of work in Belfast Lough—the study of objectionable 'lodgers' in Cockles and Mussels."





Curious protective device in a Bornean lepidopterous larva.